

REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1 and 7 have been amended. Claims 5 and 6 have been cancelled. Claims 1-4, 7-9, 11 and 12 are pending in the application.

CLAIM REJECTIONS – 35 U.S.C. § 103

Claims 1, 2, 5 and 6 were rejected under 35 USC. 103(a) as being unpatentable over Ebinuma et al. (US 4,610,202) (hereinafter "Ebinuma") in view of Chuang et al. (US 5,708,957) (hereinafter "Chuang").

Claims 3 and 4 were rejected under 35 USC 103(a) as being unpatentable over Ebinuma in view of Chuang, and further in view of Kitagawa et al. (US 6,264,855) (hereinafter "Kitagawa").

Claims 7, 11 and 12 were rejected under 35 USC 103(a) as being unpatentable over Ebinuma in view of Chuang, and further in view of Denton et al. (US 6,293,143) (hereinafter "Denton").

Claims 8 and 9 were rejected under 35 USC 103(a) as being unpatentable over Ebinuma in view of Chuang, and further in view of Denton et al.

Ebinuma

Ebinuma discusses an ink reservoir. In Ebinuma, a first tank 30 has a recess 36 and a projection 37 rising from the recess. The bottom of the projection 37 is gradually widened and contacts to the ink reservoir I. A pair of electrodes 38 are arranged to face each other on the outer walls of the projection. By detecting an electrostatic capacitance between the electrodes, a level of the ink in the first tank 30 or the presence or absence of the ink is detected. When the projection 37 is made of a transparent material, the sensor may be a photocoupler. Ebinuma 3:21-3:32 and Figures 2, 3A and 3B.

Further in Ebinuma, the recess 36 and the projection 37 are formed such that the sensors are arranged at the center of the first tank 30. The projection 37 is formed in the first tank and the sensors are arranged on the outer walls of the projection substantially perpendicularly to the ink level. Accordingly, when the ink decreases or it is vibrated, the ink does not deposit on the inner wall of the projection and the liquid level can be precisely detected. Since the bottom of the projection spreads, the rise of the liquid level on the inner walls of the projection due to surface tension is prevented and the accuracy of the liquid level detection is

further improved. Since the sensors are located at the center of the tank, a correct liquid level can be detected even when the tank is slightly inclined. Ebinuma, 3:33-3:49 and Figures 2, 3A and 3B.

Chuang

Chuang discusses an optical sensor that uses a radio luminescent light source to supply the incident radiation for detecting a selected substance in a test medium. Chuang, Abstract. Further, Chuang discusses an optical sensor that is provided with a self-powered light source by the use of a radio luminescent material that includes a radioactive beta emitter constituent and a phosphor constituent energized by beta particles from the radioactive constituent to emit light. Chaung, 2:29-2:35.

Kitagawa

Kitagawa discusses a process for preparing water resistant luminous pigments including a pigment that is homogeneously dispersed in each kind of ink vehicle, paint vehicle or the like to give a luminous ink or a luminous paint. Kitagawa, 6:42-6:45.

Denton

Denton discusses an ink level sensing device and method including a digital signal generated as a result of the output change that is relayed to the printer control to signal a low ink level alarm. Denton, 4:56-4:60.

Claims 1-6

Amended claim 1 recites: "...a supporting member disposed to protrude inward from a sidewall of the ink tank ..." Support for this amendment may be found at least in original claim 5. In contrast to amended claim 1, the primary reference Ebinuma discusses a tank 30 having a recess 36 and a projection 37 rising from the recess. The bottom of the projection 37 is gradually widened and contacts to the ink reservoir I. As shown in Figures 2, 3A and 3B of Ebinuma, recess 36 and projection 37 must be formed at the top of the ink tank 30 in order to work. In contrast, claim 1 recites that the supporting member is disposed to protrude from a sidewall of the ink tank. Further, this deficiency in Ebinuma is not cured by Chuang, as the light detecting means of Chuang are disposed at the outside of the ink tank.

Claims 5 and 6 have been cancelled. Claims 2-4 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons. Further, claims 2-4 recite features that

patentably distinguish over Ebinuma, Chuang, Kitagawa and Denton, taken alone or in combination. For example, claim 3 recites that the luminous member is a luminous paper.

Withdrawal of the foregoing rejection is requested.

Claims 7-9, 11 and 12

Amended claim 7 recites: "...an inwardly protruding supporting member disposed at a bottom surface of the ink tank to detect when the ink is low..." Support for this amendment may be found in at least original claim 6. In contrast to amended claim 7, the primary reference Ebinuma discusses a tank 30 having a recess 36 and a projection 37 rising from the recess. The bottom of the projection 37 is gradually widened and contacts to the ink reservoir 1. As shown in Figures 2, 3A and 3B of Ebinuma, recess 36 and projection 37 must be formed at the top of the ink tank 30 in order to work. In contrast, claim 7 recites that the supporting member is disposed at a bottom surface of the ink tank. Further, this deficiency in Ebinuma is not cured by Chuang, as the light detecting means of Chuang are disposed at the outside of the ink tank.

Claims 8, 9, 11 and 12 depend on claim 7 and are therefore believed to be allowable for at least the foregoing reasons. Further, claims 8, 9, 11 and 12 recite features that patentably distinguish over Ebinuma, Chuang and Denton, taken alone or in combination. For example, claim 8 recites a controller controlling operations of the inkjet printer and outputting a signal indicative that the level of ink is lower than the predetermined level to an output device.

Withdrawal of the foregoing rejection is requested.

CONCLUSION

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: Aug 22, 2006

By: Gregory W. Harper
Gregory W. Harper
Registration No. 55,248

1201 New York Ave, N.W., Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501